INCH-POUND
MIL-PRF-12934/37
1 October 2002

PERFORMANCE SPECIFICATION

RESISTORS, VARIABLE, WIRE WOUND, PRECISION,
STYLE 2RR3100

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for style 2RR3100, variable, wire-wound, precision resistors.

1.2 Part or Identifying number (PIN). Variable resistors covered by this specification must be identified by a PIN which must be in the following form.

2RR3100	X	X	B	X	L	6650
Style (1.2.1)	Function and shaft length (1.2.2)	Class and center tap (1.2.3)	Resistance temperature characteristic (1.2.4)	Rotational life characteristic (1.2.5)	Function conformity tolerance and resistance tolerance characteristic (1.2.6)	Resistance (1.2.7)

1.2.1 Style. Style 2RR3100 is a similar style to RR3100.

1.2.2 Function and shaft length. The function and shaft length applicable to this specification is identified by a single symbol X (see figure 1).

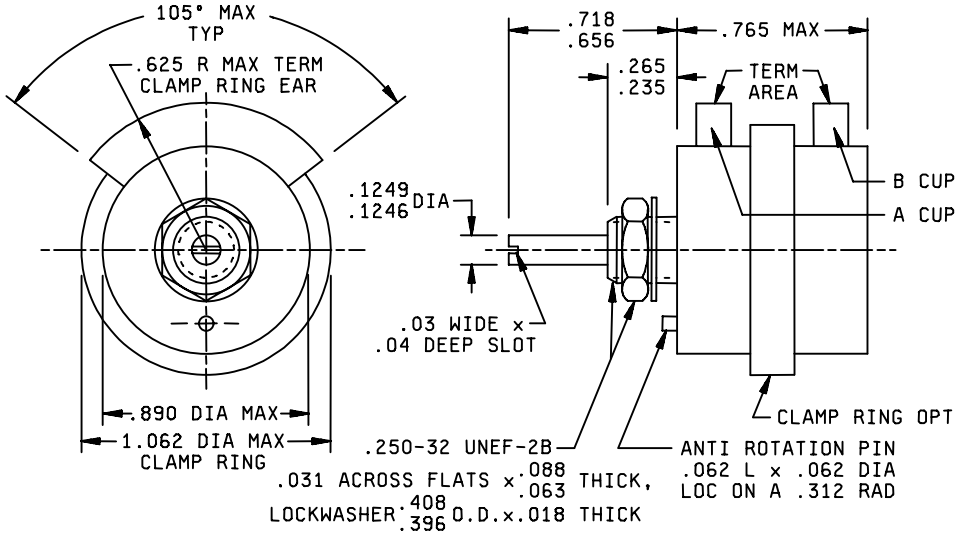
1.2.3 Class and center tap. The class and center tap applicable to this specification is symbol X.

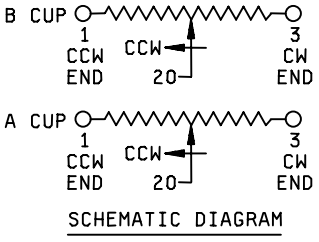
1.2.4 Resistance temperature characteristic. The resistance temperature characteristic applicable to this specification is symbol B.

1.2.5 Rotational life characteristic. The rotational life characteristic applicable to this specification is symbol X.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center, Columbus, ATTN: DSCC VAT, Post Office Box 3990, Columbus, OH 43213-5000 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 5905





SCHEMATIC DIAGRAM

ROTATION AS VIEWED FROM SHAFT END

Inches	mm	Inches	mm
0.018	0.457	0.265	6.731
0.030	0.762	0.312	7.925
0.040	1.016	0.396	10.058
0.062	1.575	0.408	10.363
0.063	1.600	0.625	15.875
0.088	2.235	0.656	16.662
0.1246	3.165	0.718	18.237
0.1249	3.172	0.765	19.431
0.235	5.969	0.890	22.606
0.250	6.350	1.062	26.975

Style	Turns	Maximum continuous working voltage (volts)	Power rating (milliwatts)	Maximum starting torque		Stop torque (pound-inch)
				First cup	Second cup	
				Starting	Starting	
2RR3100	single	500	0.25	6.0	6.0	2.0

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 1. Style 2RR3100

1.2.6 Function-conformity tolerance and resistance tolerance characteristics. The function-conformity tolerance and resistance tolerance characteristic applicable to this specification is symbol X.

1.2.7 Resistance. The nominal total resistance values and nominal resolution applicable to this specification is as follows:

First cup	665 ohms (Ω).
Second cup	665 ohms (Ω).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATION

DEPARTMENT OF DEFENSE

MIL-PRF-12934 - Resistors, Variable, Wire-wound, Precision, General Specification for.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Document Automation and Production Service, Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-12934.

3.2 Interface and physical dimensions. The resistors shall meet the interface and physical dimensions specified in figure 1.

3.3 Electrical characteristics (for Cup A and Cup B).

3.3.1 Total resistance. The total resistance of 665 ohms ±5 percent across terminals 1 and 3 throughout the temperature range from -55°C to +85°C.

3.3.2 Output load and configuration. The output load and configuration is 20,000 ohms between terminals 2 and 3.

3.3.3 Actual electrical travel. The theoretical electrical travel shall be 334 degrees.

3.3.4 Function and conformity. The type of function applicable to this specification shall be by the given equation:

$$E_{(OUT)} = E_{(IN)} * SIN(\theta \frac{90}{334})$$

when loaded with the specified load per 3.5

where:

$E_{(OUT)}$ = Voltage from the contact arm (terminal 2) to terminal 3.
θ = Shaft angle in degrees (measured from 0 degrees. (0 degrees is located at CW end of winding).
(θ = 50 degrees at index point).
$E_{(IN)}$ = 10 V dc applied across terminals 1 and 3.

Note: Counterclockwise (CCW) rotation produces an increasing $E_{(OUT)}$ as viewed from the shaft end.

3.3.5 Index point. The index point of the ganged assembly shall be located at θ = 50 degrees. The magnitude of the output voltage ration (to four digits) of Cup A shall be marked on the case. Cup B shall be phased with index point for simultaneous conformity.

3.3.6 Maximum contact arm current. The maximum contact arm current is 0.5 milliampere (ma).

3.3.7 Continuous working group voltage. The continuous working voltage is 10 V dc.

3.4 Mechanical characteristics.

3.4.1 Mechanical travel. The mechanical travel shall exceed 334 degrees.

3.4.2 Torque.

3.4.2.1 Starting. The staring torque shall be a minimum of 2 inch-ounces (in-oz) and a maximum of 6 in-oz.

3.4.2.2 Stop. The mechanical stop shall withstand a stop torque of 2.0 inch-pounds (in-lb).

3.4.3 Shaft runout. The shaft runout shall be 0.0035 inch maximum.

3.4.4 Shaft radial play. The shaft radial play shall be 0.002 inch maximum.

3.4.5 Shaft end play. The shaft end play shall be 0.005 inch maximum.

3.4.6 Rotation Speed. The maximum shaft rotation in 5 rotations per minute (rpm).

3.4.7 Moment of Inertia. The maximum moment of inertia is 40 gm-cm^2 (ref).

3.4.8 Rotational load life. The resistor shall meet the requirements per MIL-PRF-12934 for 5,000 cycles. At the end and during cycling the resistor shall meet all the requirements of this specification.

3.5 Environmental characteristics.

3.5.1 High temperature exposure. In accordance with MIL-PRF-12934 class 2.

3.5.2 Temperature cycling. In accordance with MIL-PRF-12934, for class 2 except -55°C for low temperatures.

3.5.3 Shock. In accordance with MIL-PRF-12934, except resistors shall be checked for discontinuity during shock and performance after shock only.

4. VERIFICATIONS

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-12934.

4.2 Extension of qualification. Manufacturers who have passed the qualification requirements, and have been approved and listed on or approved for listing on the qualified products list (QPL), for style RR3100, will be approved for style 2RR3100.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The intended use specified in MIL-PRF-12934 is applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification, and the complete PIN (see 1.2).

b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of the individual documents referenced (see 2.1).

c. Packaging instructions (see 5.1).

6.3 PIN. This specification requires a PIN that describes technology and appropriate references to associated documents (see 1.2 and 3.1).

Custodians:
Navy - EC
DLA - CC

Preparing activity:
DLA - CC

(Project 5905-1659)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	**1. DOCUMENT NUMBER** MIL-PRF-12934/37	**2. DOCUMENT DATE (YYMMDD)** **02/10/01**

3. DOCUMENT TITLE RESISTORS, VARIABLE, WIRE WOUND, PRECISION, STYLE 2RR3100

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Incl Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME Defense Supply Center, Columbus ATTN: DSCC/VAT	b. TELEPHONE (Include Area Code) (1) Commercial (614) 692-8754 (2) AUTOVON 850-8754
c. ADDRESS (Include Zip Code) Post Office Box 3990 Columbus, OH 43216-5000	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** Defense Quality and Standardization Office 5803 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340